

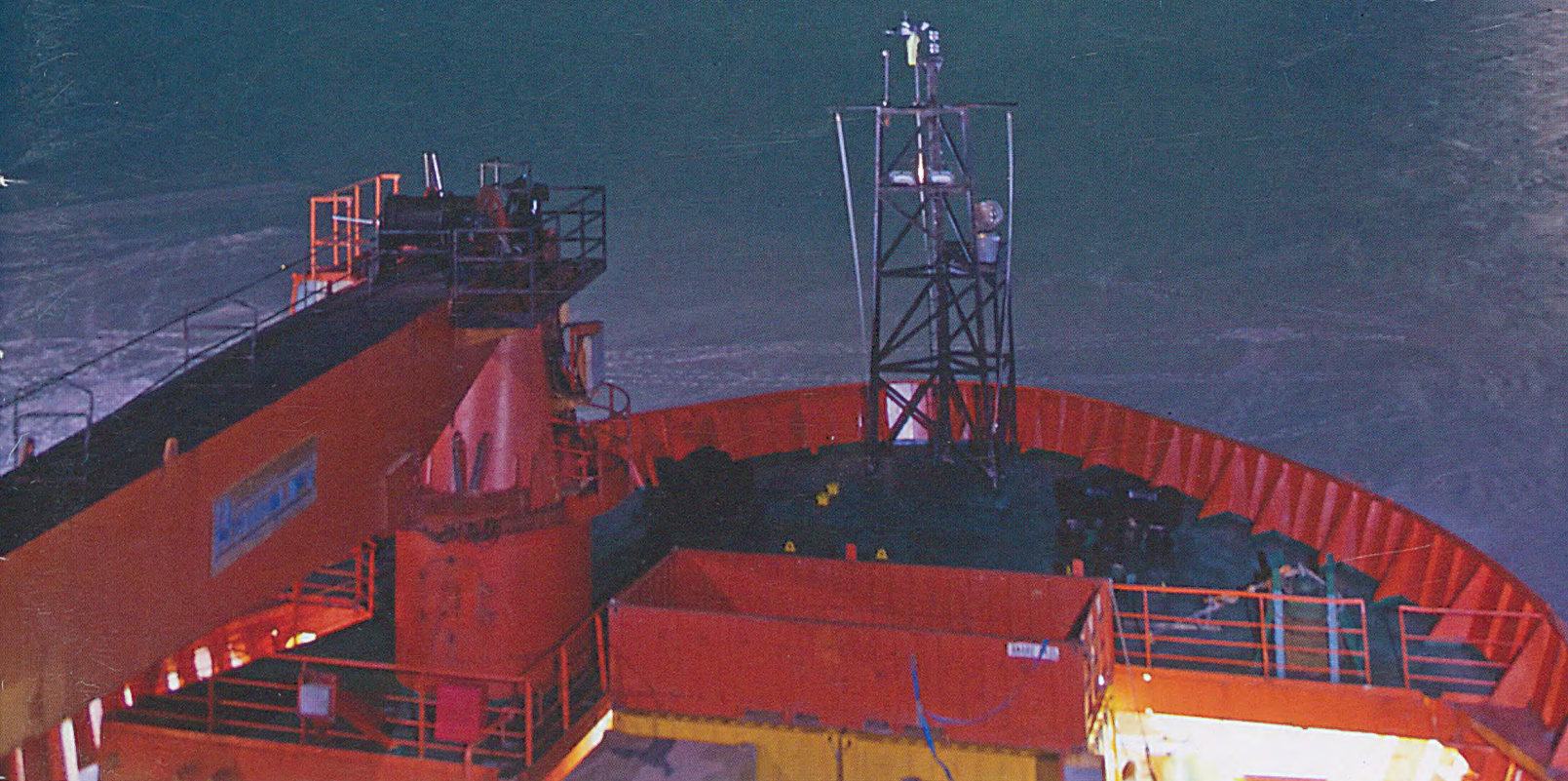
ICE

Breaker
MAGAZINE

Jun - Aug 2011 Edition 55

RRP \$8.50

TASMANIA'S ANTARCTIC NEWS AND VIEWS



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Exploration results

Exploring IMAS
Institute designs

Seeking Aurora
Display alerts



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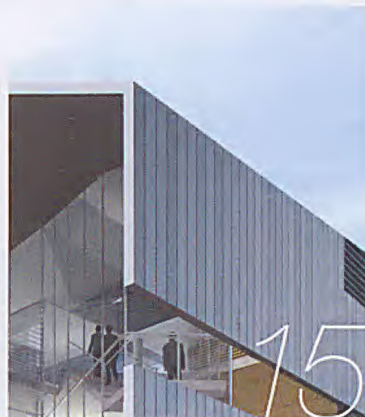
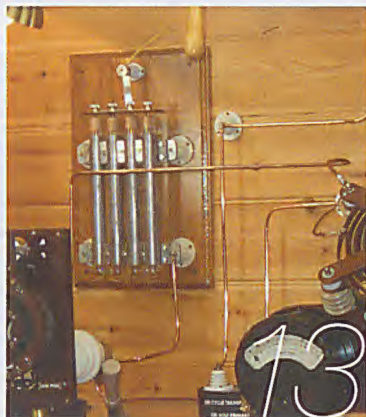
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Cover picture

Courtesy Frederique Olivier



Editorial

Events of the Antarctic Centennial Year have now begun. As well, a month before the official launch on May 6, the Mawson's Huts Foundation held their annual seminar in Hobart, and it was very interesting to hear how Mawson's legacy influenced current activities.

The ACY launch was held just prior to the opening of the Extreme Environment Photographic Competition, and 31 photos, capturing the diversity of polar imagery available, were chosen for display.

It is disappointing that Antarctic Tasmania will no longer be in Salamanca Square. It is also difficult for me to understand why Tasmania's Antarctic community did not ask the State and Federal governments to share the lease in Salamanca Square, particularly during the ACY year.

I believe AT will lose its individuality, when merged with other government offices at 22 Elizabeth Street.

As the Federal government supports the AAD and is being asked to finance improvements to the port, why was it so hard to ask for support for a key stakeholder in all Tasmanian Antarctic activities? The TPN is full of innovative members willing to take on extreme challenges, but sadly, not this one.

I'd be interested to know your opinion.

Anthea Wallhead

Editor, Ice Breaker

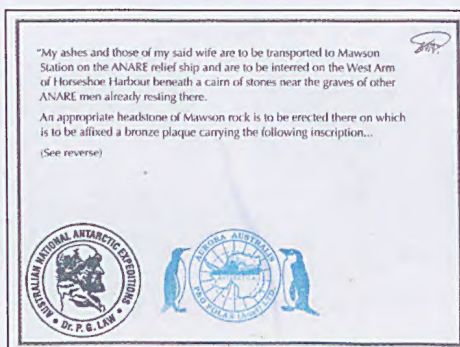
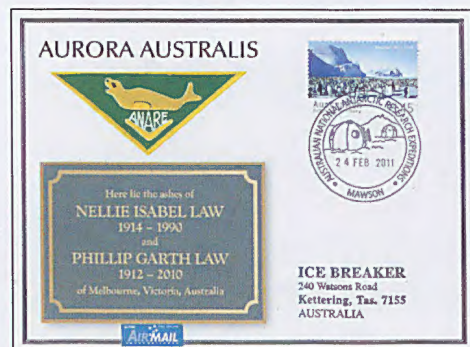
From our Readers...

Thanks to Gordon Bain, TPN member:

An interesting research project, found in the New Zealand Antarctic Society's Antarctic News Bulletin, Vol 1, No 1, March 1956:

"The U.S. Navy plans to store 100 loaves of bread in the Antarctic, and to test their edibility at the rate of one a year for 100 years."

45 loaves to go...



Postcard acknowledging Phillip and Nellie Law's commemorative plaque. Courtesy Klaus Arne Pedersen.

ICE Breaker MAGAZINE

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Editor and Production Coordinator

Anthea Wallhead

Design and layout

Robert Wallhead
David Hopkins

Research

Peter Wallhead

Printer

Newprint Pty Ltd

Comments and contributions for future editions are most welcome.

Address Editorial Correspondence to:

Editor, Ice Breaker
240 Watsons Road,
Kettering,
Tasmania,
Australia 7155

Phone: 03 6267 4774

Fax: 03 6267 4335

Email: anthea@icewall.com.au

Internet: icebreakermagazine.com

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Nor is it to be construed that other material on any of the subject matter is unavailable. Further, Icewall One accepts no responsibility for persons who may rely on this information for whatever purpose. The views expressed in these articles are not necessarily the views of the editorial committee.

Thanks to Klaus Arne Pedersen, Sue Halliwell and Frederique Olivier for their permission to use their Antarctic photographs.

Ice Breaker magazine: Copyright 2011 and individual contributors

Winners of the Extreme Environment Photographic Competition 2011



'Polarnight' by Lars Andreas Dybvik (Norway), winner of the 2011 Extreme Photographic Competition's Trafalgar Prize of \$5000 from Nekon Pty Ltd, for best capturing humanity's enduring endeavour in extreme polar environments.

'Sunrise - RV Aurora Australis' by Rob Kilpatrick (Tasmania), winner of the 2011 Extreme Photographic Competition Wayne Papps Memorial Prize of \$2000, sponsored by the Tasmanian Government.



'Blue Berg' by Joshua Holko (Victoria), winner of the the 2011 Extreme Photographic Competition People's Choice Award of camera equipment from Fuji Film Australia.

Ice Breaker wishes to thank Antarctic Tasmania and the respective photographers for permission to include their competition entries in this edition.



David O'Byrne

Minister for Innovation,
Science and Technology

Promoting Tasmania's Antarctic expertise

Tasmania has a proud history of supporting Antarctic expeditions and research. The people of Tasmania have a strong emotional connection to Antarctica, fostered by a century of assisting explorers and scientists on their expeditions. We value our role as a part of the Antarctic story.

One of the advantages of being the minister with responsibility for Tasmania's role in science and the Antarctic is the chance to meet with people involved in some fascinating work.

In April I had the opportunity to visit the Australian Antarctic Division (AAD) in Kingston and met with Director Lyn Maddock and members of the executive team. I was given an excellent tour of the AAD's facilities, including the engineering labs and the supply facilities. We discussed a range of current research projects such as the krill maturation and reproduction work at the Kingston site and the critical climate change research.

It was wonderful to see not only the world-leading research that is being undertaken but also the level of innovation in equipment design and manufacture that the AAD does to support that research.

I was delighted to launch the Antarctic Centennial Year on 6 May at the Tasmanian Museum and Art Gallery. Incorporating the Extreme Photographic Competition the launch provided an exciting insight into the calendar of events for the next 13 months.

The Antarctic Centennial Year brings a range of opportunities to Tasmania, not only from the outcomes from the individual meetings and events, but from the broader opportunity to strengthen Tasmania's gateway status.

I am determined that we take this opportunity to promote Tasmania's Antarctic expertise to the Australian and international Antarctic community. We would all like to see more Antarctic Treaty nations using Tasmania as a base for all if not part of their research and logistics operations.

A key to this is appropriate infrastructure. While the port facilities are currently meeting the needs of the Antarctic community we recognise that we can do more in this area.

Hobart's role as an international gateway is the centrepiece of Tasmania's submission to Infrastructure Australia. The submission identifies the need for further investment in the Hobart port infrastructure to support the growth and development of the port and its capacity to service Antarctic research programs.

Concurrently we are working closely with Tasports who have undertaken a feasibility study into developing Macquarie Wharf No 2. shed as a dedicated Antarctic cargo facility. I will be meeting with Tasports and other key Antarctic sector stakeholders shortly to progress this further.

I am delighted that in this critical time for the Antarctic community we have secured a new director of Antarctic Tasmania, Science and Research. The appointment of Dr Denzil Miller will bring a wealth of knowledge and experience not only to the Antarctic and Southern Ocean sector, but to the science and research sector in Tasmania as a whole.

I know Dr Miller is well-known to most of you for his time as Executive Secretary of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). I look forward to Dr Miller's input when he starts his new position on 1 June.

Time change

The Marine Discovery Centre will be closed for the school holidays and will open again to the public in second term 2.30pm to 4.00pm.



Elise Archer

Shadow Minister for
Planning

The State Coastal Policy

The issue of a State Coastal Policy in Tasmania has been put in the 'too hard basket' for too long by the State Government. The 2004 draft policy has now been completely shelved by the government and the outdated original 1996 policy will remain in place. The whole review process must start all over again, effectively wasting seven years.

A State Coastal Policy must make reference to the fact that the policy should work to facilitate the conservation of natural, social and economic assets, values and processes of the coastal area; the sustainable use or development of coastal areas, and the satisfaction of social needs and development of culture.

Since 2004 there has been little movement. There have been approximately 52 submissions by stakeholders and members of the public with positive suggestions. In fact, some of these said that the 2004 draft State Coastal Policy is so deficient, that the original 1996 State Coastal Policy, even though out-dated, is a better outline of what the state needs.

The lack of clarity around coastal policy in Tasmania, therefore, still remains today.

But what is clear is that the State Government's abject failure to update this Policy has further hindered local governments and development around the State, including tourism on Maria Island, further developments at the Bay of Fires on the State's East Coast and the State's role as the Antarctic gateway.

I believe the State's Coastal Policy should be informed by independent, scrutinised, scientific and appropriate guidelines for local government to base their planning processes around, and take shared responsibility in planning for future generations.

On 6 March 2010 the Australian newspaper reported that "Australia's six state governments have four different figures for predicted sea-level rise caused by climate change, leaving developers and councils confused and sparking calls for a federal takeover of coastal climate change planning." (The Australian, "States at sea over coastal levels").

In the same article, the Australian Local Government Association President, Geoff Lake, was reported to have said "the different state plans were creating confusion and a lack of direction for councils and developers. There was no central direction and no adequate collaboration between the states."

A State Coastal Policy needs to set out minimum 'set backs' for developments due to the reported threat of rising sea levels. And it must provide strong direction and leadership for local government in considering planning related to Tasmania's coastal areas.

A cogent and clear coastal policy which addresses climate change threats, threats from natural disasters such as bushfires, and identifies mitigation and precautionary principles, to inform and guide all development in Tasmanian coastal regions is clearly essential.

Tasmania is lagging behind the rest of the country with regard to a comprehensive, up-to-date State Coastal Policy.

Only recently we have heard the Premier on numerous occasions talk about how planning reform is a major priority and how it is necessary to get the economy back up to speed.

Sadly, it seems that the State Coastal Policy is not included as part of this so called 11th hour 'urgent planning reform'.

Certainty is only available to developers when they know what bounds they can work within – not when certain types of developments are selectively 'cherry-picked' and 'blanket-banned'.

The State Coastal Policy should deal with developments such as canal estates as well as other issues affecting our coastline.

After a seven year review farce, a full and comprehensive updated State Coastal Policy in Tasmania is well overdue.



John Brennan
Chairman, TPN

The cooperation will pay off

I put to you that cooperation between stakeholders in the Antarctic and Sub-Antarctic sector will pay off for the future expansion and development of the sector. Let us examine some of the most recent evidence.

The launch of the Antarctic Centennial Year (ACY) in May means Tasmania can look forward to a number of international conferences and recognise significant dates linked to the last heroic era and our history of Antarctic exploration 100 years ago. I wonder what Sir Douglas Mawson would think about Australia's role in Antarctica? I am sure he would be proud of the leading position we hold with respect to science and research.

As I write this article the first event of the ACY, the conference for the International Association of Antarctic Tour Operators (IAATO), has just finished. Everyone I talk with, so far, agrees that the IAATO conference was a roaring success. It was a pleasure for the TPN to sponsor and welcome the delegates to Tasmania at the "Ice Breaker" cocktail party held at the Lark Distillery. The evening provided an opportunity for members to mix and mingle with our international guests and make them feel welcome.

The ACY would not be possible without the cooperation and support of state and federal government departments, local government, key businesses, community volunteers, sponsors and the ACY committee.

The next twelve months will be important because we have an opportunity to focus and galvanise the scientific community, business and the general community at large towards what we have and to showcase our capacity and capability to an international audience who will be on our doorstep. Cooperation is at the heart of ACY. I believe that it will be successful for this reason alone.

The second example of cooperation involves the efforts of Tasports to repair and modernise the wharf area.

While I have heard it said in some circles that progress is seemingly slow, it would be so easy to pass a negative judgment. Good planning does take time and if we as a sector want the best outcome we probably should remain patient as well as maintain open communication. Consideration of the unplanned complications thrust upon the state from the federal and state budget cuts can also protract development and we should take these factors on board.

I am glad to report that recent consultation with Tasports confirms that they have been proactive and are nearing an important goal. Apart from employing a designated cruise and Antarctic sector manager; consulting with port users including the TPN; implementing competitive pricing; undertaking repairs to wharf areas, and working with DEDTA for possible infrastructure funding, Tasports have draft designs and costings for the Mac-2 Cruise/Antarctic Logistic facility ready to go to the Tasports Board in forthcoming weeks.

The level of cooperation and consultation we enjoy within the sector is vibrant. In the months to come I predict we will have to turn our attention towards encouraging those with the purse strings to invest in the future. All the hard work to date cannot be wasted because we have a vision that Tasmania will be a hub of excellence serving the Antarctic and Southern Ocean sector.



A Mawson cachet, courtesy Klaus Arne Pedersen



Tony Press
CEO, ACE CRC

The ACE CRC 20 years of Science and Collaboration

The 12th of March 2011 marked an historical milestone for the ACE CRC. Twenty years before, Prime Minister Bob Hawke stood in Parliament and announced his government's "Building a Competitive Australia" initiative. The Cooperative Research Centres program was a key component of Building a Competitive Australia, which grew out of the government's decision to lift trade tariffs. The CRC program was designed to bring together researchers from different institutions and disciplines to work with 'end users' on significant research questions.

The Cooperative Research Centre for the Antarctic and Southern Ocean Environment was in the first batch of CRCs announced in 1991. Its original partners were the Australian Antarctic Division (AAD), the University of Tasmania (UTas), CSIRO, the Bureau of Meteorology, and Geosciences Australia. Through its various manifestations the AAD, CSIRO and UTas have remained central to the collaboration in the ACE CRC. ACE now has the Australian Government Department of Climate Change and Energy Efficiency, the Alfred Wegener Institute (Germany) and the National Institute of Water and Atmosphere (NZ) as additional core partners, and formal collaborations with 17 other partners spanning the globe, including partners from the business sector.

As the "Antarctic CRC" grew into the ACE CRC, the strength of the collaboration was evident: cross disciplinary research efforts to understand the physical and chemical changes in the Southern Ocean had already demonstrated that changes were occurring in this great engine room of global climate - and that they had potentially significant implications for climate change. ACE researchers had been at the forefront of reconstructing climate history through analyses of ice cores, and in understanding the significant role of sea ice in climate and ecosystems. ACE scientists demonstrated the role of thermal expansion of the oceans and the importance of the Antarctic ice sheets to sea level rise. And the ecological impacts of changes in the Southern Ocean, and their implications for sustainability of fisheries, were beginning to be understood.

Twenty years from its inception, the ACE CRC collaboration continues to play a pivotal role in understanding the importance of Antarctica and the Southern Ocean in the global climate system and climate change. This past austral summer saw the successful completion of a multi-disciplinary scientific voyage to the Mertz polynya aboard *Aurora Australis*. In February 2010, the Mertz glacier 'calved' a large iceberg, and this provided a unique natural experiment to investigate how this event could change the oceanography of the region. Also over the summer season, two 'high resolution' ice cores were retrieved from Antarctica, and these will be used to derive detailed reconstructions of past climate.

The last year has also seen the publication of more than 110 research papers from the ACE CRC. These included the discovery of an enormous deep ocean current flowing north from the Antarctic through the Indian Ocean south-west of Perth; a paper which proposed the hypothesis that whales played an important role in the productivity of the Southern Ocean by making iron available for primary production; and the results of a study that showed that primary production in the oceans around Tasmania is driven by iron - and that the supply of iron is changing as the ocean warms and a strengthening East Australia Current pushes more water south in the Tasman Sea. A special issue of "Deep Sea Research" is also about to be published which will present the results of the SIPEX (sea-ice) voyage undertaken in 2007-08.

ACE will soon publish a "year in review" which will highlight in more detail the recent activities of the CRC.

Mid-winter wishes

As we approach mid-winter I would like to give my best wishes to all expeditioners in the Antarctic. Your participation in and support for Antarctic research is very much appreciated. All the best for mid-winter.



Council networking

The Antarctic Centennial Year celebrations are upon us and as a Council we welcome the large number of conferences, exhibitions, meetings and extensive program of cultural and social events being held in our great City over the coming months.

The first official event to mark this year-long celebration was the City hosting the 22nd Annual General Meeting of the International Association of Antarctica Tour Operators (IAATO) between 9-12 May 2011.

IAATO is an influential group of approximately 100 members of Antarctic tour operators including ship owners, expedition operators and travel agents, from around the world, that meet annually to plan policy and operations for the coming Antarctic tour seasons. They are generally regarded as decision makers and entrepreneurs in this sector.

The Hobart City Council hosted a networking function at the Mawson Place Waterside Pavilion on Tuesday 10th May for Aldermen and Council staff to meet the delegates and welcome them to the City.

The Council took this opportunity to invite the Mayors and General Managers of Southern Tasmanian Councils to the function to help foster regional involvement in this sector and to promote the region's support to the IAATO delegates.

Several key local tourism and hospitality operators were also invited to attend in order to give the IAATO delegates the opportunity to develop relationships with some of the City's leading providers and to promote the quality and diversity of the region's services and products.

The Council remains focused on increasing Hobart's status as an Antarctic gateway City by facilitating discussion and encouraging economic development opportunities in this sector.

Together we can make it happen!

Alderman Rob Valentine

Lord Mayor

Antarctic Tasmania, Science and Research is moving!

From **31 May 2011** Antarctic Tasmania, Science and Research will be operating from the Department of Economic Development, Tourism and the Arts' head office, and will no longer be based in the Salamanca Square office. Please update your address book to:

Department of Economic Development,
Tourism and the Arts
Antarctic Tasmania, Science and Research
22 Elizabeth Street
Hobart Tasmania, 7000

GPO Box 646
Hobart Tasmania, Australia 7001

Ph: (03) 6233 5493 or 1800 440 026

Int Ph: +61 3 6233 5493

Fax: (03) 6233 5800

Int Fax: +61 3 6233 5800

Email: Antarctic@development.tas.gov.au

Web: www.antarctictasmania.com

For information on the Antarctic Centennial Year, please visit:
www.antarcticcentennial.tas.gov.au

Department of Economic
Development Tourism
and the Arts



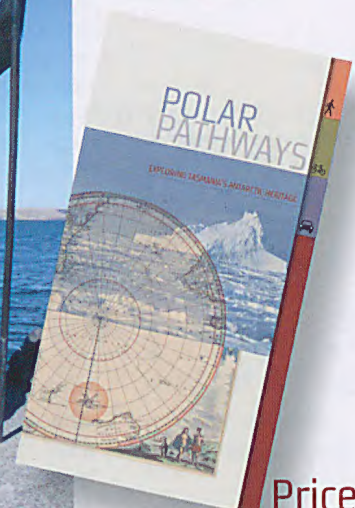
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Price: \$10

Antarctic Centennial Year

More information about ACY activities can be found at www.antarcticcentennial.tas.gov.au or centenary.antarctica.gov.au



Ice moves

As well as Antarctic Tasmanian, Science and Technology (ATSR) moving from Salamanca Square to the ANZ building in Elizabeth St, Hobart (see advertisement Page 10), several other members of the Antarctic Community have changed their positions:

- John Brennan, TPN Chairman, has resigned from Veolia.
- Denzil Miller, formerly Executive Secretary for CCAMLR, will be the new director of ATSR in June.
- Peta Sugden, from ATSR, is now with the Department of Premier and Cabinet, for Minister David O'Byrne.
- Jane Eldershaw, responsible for the latest Antarctic Census, has replaced Mary Woolnough at ATSR.
- Lyn Maddock, Director of AAD is retiring in June and a new Director will be appointed soon.
- Brett Reiss has resigned from Hobart International Airport and Rod Parry is Acting CEO.
- Michael Carr is the new contact for Tasmanian branch of the ANARE Club, replacing Ingrid Mcgaughey. Phone (03) 6231 5391 or email anare.tasmania@yahoo.com.au

Ports upgrades

Federal funding is being sought by the State government for vital upgrades to Hobart's airport and wharves, to ensure the State's role as Gateway to Antarctica is maintained. A submission to Infrastructure Australia describes key areas for improvement and requests \$400 million to upgrade and repair port facilities, redevelop Macquarie Wharf No. 2 and remediate the old railyards site, as part of new facilities for AAD and the French Antarctic programs. In addition, proposals have been made for the expansion of the airport runway to cope with larger planes bound for Antarctica as well as for a specialist science and training centre.

Touring exhibition

Susan Gordon-Brown's 'Down South' photographic exhibition of Antarctic tradespeople, their portraits and story boards, will be on show at Hadley's Hotel in Hobart on June 16-20, 2011; World Trade Centre Melbourne in October, 2011; Melbourne Town Hall in August 2013 and the Ballarat International Foto Biennale, Victoria. ANARE Club members who can organise other exhibition space can contact Susan Gordon Brown at susan@susangordonbrown.com.au

Centenary voyage

Three ships will be departing Hobart on December 2, 2011 to follow the route Mawson's expeditioners took aboard Aurora to Antarctica in 1911: The Orion, for Orion Expeditions, ex Sydney; The Spirit of Enderby - formerly Professor Khromov, for Heritage Expeditions, ex Christchurch and The Akademik Shokalski, for Aurora Expeditions, ex Sydney.

In port, or joining the flotilla which will accompany the ships at least as far as the Iron Pot in the Derwent Riiver, will be the 250-metre Celebrity Century cruise liner; Aurora Australis; L'Astrolabe; possibly the Young Endeavour and another RAN ship; the TasPorts ocean-going tugs, the Governor's launch and half the private yachts in southern Tasmania. According to Paul Cullen, Cultural Director of ATSR, "It's rapidly snowballing into a huge public event!"

IAATO Ice Breaker

Delegates arriving in Hobart for the annual meeting of the International Association of Antarctic Tourism Operators were hosted by the TPN at the Lark Distillery on Sunday, May 8, 2011.

Part of the TPN display at the IAATO function

The reception provided an opportunity for tourism operators to meet with TPN members who supply goods and services for other Antarctic operations, and over 60 people attended. John Brennan, Chairman of the TPN, welcomed IAATO delegates, and invited them to read the material available at the TPN display (below), and talk to TPN members about any products relevant to their operations.

For the next four days, IAATO delegates attended a series of meetings at CCAMLR headquarters, to hear reports and discuss a wide range of Antarctic tourism topics.

Evenings were spent at other receptions hosted by the Tasmanian Government at TMAG on Monday and Hobart City Council at Mawson Pavilion on Tuesday. Tasports and Tourism Tasmania ferried the group to MONA for drinks and dinner on Wednesday and a tour of the AAD in Kingston was organised for Thursday.



The Mawson Legacy Part 1

The annual Mawson's Huts Foundation (MHF) seminar was held in Hobart for the first time on April 6, 2011. The theme, 'The Conservation of Mawson's Huts – Report on achievement of the 2010-11 expedition and discussion on future works', was covered by 20 presentations during the day, and was attended by over 60 people.

The seminar was opened by Ms Lyn Maddock, Director of AAD and introduced by David Jensen, Chairman of MHF. Firstly, Lyn expressed her thanks to MHF for the recent conservation work on Mawson's Transit Hut. She also explained how the different and complex groups in the Australian Antarctic community, like ANARE, AAD, MHF and TPN, can provide unique opportunities to raise awareness of all Antarctic activities, particularly in the centenary year. Currently, MHF are seeking comment on their management plan 2007-2012, which can be accessed at <http://www.antarctica.gov.au/protecting-the-environment/mawsons-huts-mp-review>.

The next speaker was Dr Peter Morse, computer visualisation specialist, who explained some of the technical difficulties involved in creating his Ice Museum movie, which focuses more on the other 18 men involved in scientific research during Mawson's expedition. The movie will be shown in the Melbourne Planetarium. See petermorse.com.au.

Peter McCabe, Adrian Welke and Stirling Smith spoke of the MHF's work last season, describing the progress made in the main hut and Transit Hut. Then Toni Ross, Materials Conservator, spoke of the conservation of the Air Tractor Tail recovered and brought back to Australia for further conservation.

After morning tea, Stirling Smith described how artifacts found in a grid over one place can be found in another place the next season, due to wind or ice movement, and Dr David Tinguay described the current team's weather and communication systems. He explained the advantages of using an International Marine/Maritime Satellite Broadband Global Area Network (INMARSAT BGAN) which has fixed satellites over the Equator, rather than the Iridium unit which is reliant on several satellites with polar orbits.

Michelle Berry then provided a guide to the Australasian Antarctic Expedition's (AAE) artifact database being compiled from work at Commonwealth Bay - data.aad.gov.au – **Antarctic Heritage Register – Cape Denison artifacts.**

Dr Tinguay recounted efforts made to establish a Post Office at Cape Denison during MHF stays and stamp covers (example below) are now available via the MHF website.

He also described water collection methods, how geological samples were collected, the webcam and Automatic Weather Station support for the World Weather Watch system.

Prior to lunch, Rod Ledingham gave a humorous account of how and why he was sent, with a small team, to Commonwealth Bay in 1978. His weather readings were very similar to those taken by Mawson and Rod's record of artifacts became the basis of MHF's ongoing work.

John Gillies, editor of Aurora, the ANARE Club's journal, followed this with a description of his work on a reproduction of Mawson's radio receiver. With assistance from other ANARE Club members, blurred photos of the original, and copies of original drawings, John spent two years, using mostly hand-made components, reconstructing the receiver. He also demonstrated how it worked to the audience. The radio receiver will be installed in the replica Mawson's Hut to be set up near the Mawson Pavilion in Hobart during the centenary celebrations.





John Gillies and David Jensen in front of the replica of Mawson's radio.

After lunch, Andrew Jackson, former head of policy at AAD, presented 'Mawson and the national interest', which outlined some of Mawson's insights into the value of Antarctic research to the future of Australia. This is now highly significant, particularly regarding climate change. Andrew also pointed out that Mawson Station is the oldest Antarctic station recording a continuous link to current interest in Antarctica.

Paul Cullen, Cultural Events Manager for Antarctic Tasmania, then described some of the Antarctic Centennial events being planned for this year, and recounted the significance of Hobart to Mawson and Amundsen. In December this year, a flotilla of boats will accompany three ships as far as the Iron Pot, before they retrace Mawson's voyage in Aurora to Antarctica.

David Jensen gave an update on the Mawson's Huts Centenary plans to launch a book on Mawson at the end of the year and Dr Ian Godfrey gave an update on plans for a travelling exhibition of artifacts from the AAE site.

Entitled 'Traversing Antarctica: The Australian Experience', the exhibition will be travelling around Australia, after spending four months at TMAG. See www.museum.wa.gov.au.

Andy Baird from TMAG provided some reassuring information that the current Islands to Ice display will stay in place during the Museum's redevelopment and new collections and educational programs will be available in the space currently used upstairs, as well as downstairs.

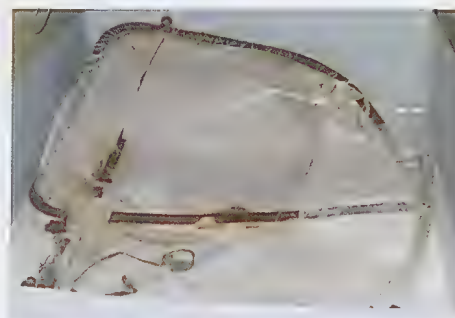
The next presentation was given by Geraldine Edwards, who described Hobart's wide range of Antarctic connections through members of the Tasmanian Polar Network – www.tpn.aq. This was followed by Noel Carmichael's report on the conservation of historic sites on Macquarie Island and Linda Jacobs from NAA showed some early footage of Mawson's departure from Hobart and activities on arrival in Antarctica..

The seminar concluded with Peter Morse showing the audience different ways of spreading the word about Antarctic events and comparing the use of websites and social networks, particularly to attract younger generations.

His example of a walkthrough interface which enables users to move through Mawson's Hut and search for artifacts, rather than trying to discover the most suitable website for the same information, was very thought-provoking!

David Jensen, Dr Godfrey, Adrian Welke and Rob Easter then summarised the MHF plans for the next expedition to Commonwealth Bay, which included recovering the remains of the air tractor and further work in the interiors of the huts.

The seminar finished at 4:30pm, after provided the audience with a very interesting range of Antarctic and MHF information.



Tail from Mawson's Air Tractor.



Imaginative IMAS

After many years of discussion the University of Tasmania established an Institute for Marine and Antarctic Affairs (IMAS) on January 1st, 2010. The Institute is just one of three University Institutes (the others being the Australian Maritime College and the Menzies Institute), all of which sit outside the normal university structure of Schools and Faculties. IMAS has an independent Board that reports to the University Council via the Vice Chancellor.

IMAS was created in order to strengthen not only relationships within the University but to offer new opportunities for collaboration with CSIRO Marine and Atmospheric Research, and the Australian Antarctic Division. At IMAS' heart lie the University's former Institute of Antarctic and Southern Ocean Studies, the former Tasmanian Aquaculture and Fisheries Institute; the former Centre for Marine Science that incorporates the Quantitative Marine Science PhD program jointly funded by CSIRO and the University, and staff from several University schools with interests in marine and Antarctic science. Closely associated with IMAS are three federally funded bodies housed in the University including the Antarctic Climate and Ecosystems Co-operative Research Centre (ACE CRC), the Integrated Marine Observing

System (IMOS), and the Tasmanian Partnership in Advanced Computing (TPAC). The State Government and the University have completed a new collaborative funding agreement, to underpin Tasmania's leading role in fisheries and aquaculture research and development.

IMAS currently operates on two sites; the Sandy Bay campus of the University and the former Marine Research Laboratories at Taroona. Its footprint may, in the future, extend to parts of the Australian Maritime College in Launceston.

As is widely known, the University was successful in an application to the Government's Education Infrastructure Fund for funds to build a dedicated IMAS building on a site on Princes Wharf, adjacent to CSIRO. Forty five million dollars have been provided to the University and design of a 7,400 sq metre building is well underway. Planning approval has been granted and transfer of the land from the Crown to the University is in hand. The building is being designed by John Wardle Architects of Melbourne, one of Australia's leading practices with great experience in the design of research buildings.





Computer designed images of what the building might look like have been published in the press and have attracted many laudatory reactions. The plan is for the building to be completed by mid-year, 2013.

Although named for IMAS the building will house not only IMAS but also the ACE CRC, IMOS, and TPAC. The Taroona marine facility will be maintained as the site for aquaculture research, and hopefully expanded as time goes by. Laboratories on the wharf are being designed for a wide range of research from the study of ice cores necessitating refrigerated laboratories to penguin biology, and the building will provide a home for all third-year undergraduates who are studying marine-based units.

All Honours, Masters and PhD students will be accommodated alongside their supervisors in a vibrant research and intellectual environment. There will be a well-found undergraduate teaching laboratory and a lecture theatre that can hold over 100 people. Together with the adjacent CSIRO building we hope to create a marine science precinct in the heart of Hobart.

A special feature of the building is that a part of the ground floor will be used for public displays on a wide range of marine and Antarctic matters; people out for their morning coffee will be welcome to come in and see what's on display. In keeping with University policy for all major projects the building will obtain 5-star Green Star building status and thus be as environmentally efficient as possible.

It will collect rainwater for use in toilets, and use the temperature difference between River Derwent water and the air above it for the building's temperature control. Accommodation will be provided for 150 bicycles, a facility we intend to share with our colleagues in CSIRO.

Hobart is indeed fortunate to be home to such a large community of researchers interested in marine and Antarctic science and policy.

Establishment of IMAS' impending co-location with associated bodies in a single building provides a unique opportunity for the many threads of research and teaching currently being undertaken to be woven into a ribbon, the reach of which is limited only by our imagination.

Michael Stoddart

Chair, IMAS Board



All imagery kindly supplied by John Wardle Architects of Melbourne and TERRIOR.

Hooked on Antarctica: Pat Quilty's first visit

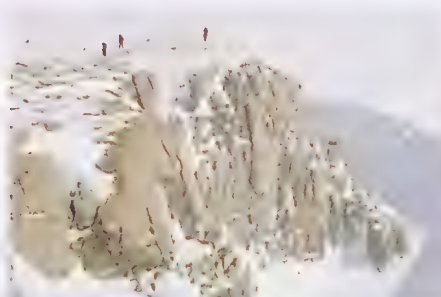


Those of us who feel a strong affiliation with the Antarctic and return whenever we can, were inspired by something in our first visit. This is my story.

In 1965, I was a PhD student and junior member of teaching staff in Geology at the University of Tasmania. In August, I had given a lecture to a group of first year students and returned to my room to find a note asking me to ring OTC (Overseas Telecommunications). In those days, overseas 'phone calls were almost unheard of, and to a junior member of staff? So I went to college for lunch and a game of table tennis before coming back. I rang, and the switchboard attendant (a real person, in days before the modern mechanical voices) said something like 'Thank God you called; they've been holding the line' (for 1½ hours). It was Washington DC and the message was 'We hear you are the sort of person we'd like to have working with us in Antarctica. Would you be interested and if so, could you meet us in Christchurch in six weeks?'

Was I interested? Only a childhood dream! There was a minor problem of postponing a wedding for two months, but that was overcome.

So I joined the University of Wisconsin Eastern Ellsworth Land Geology Expedition of 1965/66 in Christchurch. There were seven of us - New Zealander (Peter Otway, surveyor), Canadian (Martin Halpern, geophysicist), three U.S. geologists/geophysicists (Tom Laudon, leader; Larry Lackey, and Peter Wasilewski), a U.S. Navy met. observer (Russel White). And me.



The aim was to map an area at the very southern end of the Antarctic Peninsula at about 77°S; 72°W and see how it related to other parts of Antarctica. Lincoln Ellsworth had flown over the area in 1935 and an American geophysical tractor party had passed through in 1961, its track marked by reversal of direction at crevasses. There also had been one flight to take aerial photographs using the trimetrogon system (one vertical and two oblique images).

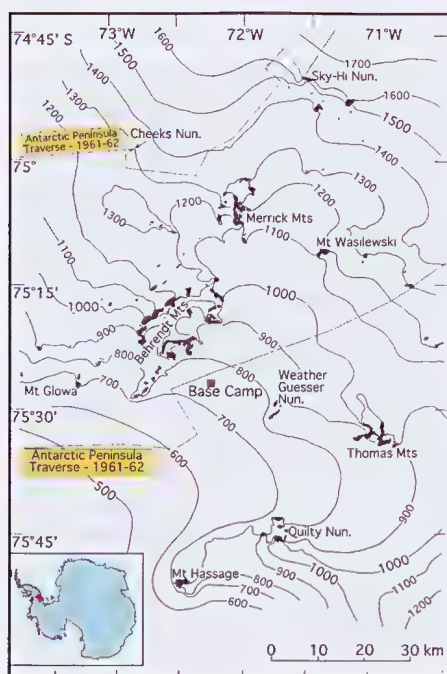
After many delays due to non-ideal weather, we flew to McMurdo Sound Antarctica in a wheeled Lockheed Constellation (Pegasus - it's still down there in several pieces). Here, we did the usual snow and icecraft training and got to know each other.

It was all so new to me, and just four years after the Antarctic Treaty came into being.

Eventually, we took our ski-equipped Hercules for the flight into the field. On the way, we landed at Byrd which was operating at the time. The 'plane was refuelled and took 13 attempts to get airborne, interrupted by another refuelling after about 6 or 7 failures. An interesting experience. I understand that 17 is the record.

And so, into Eastern Ellsworth Land. It was a beautiful spot with our main camp in the middle of a glacier about 30 km wide. From here, we used Polaris Snow Traveller motor toboggans (prototypes?) to get to outcrops on either side of the glacier. My role was twofold - to be a palaeontologist (looking for fossils - very successful) and also a mechanic to look after the engines on the toboggans. No helicopters for us.

The key moment for me (other than the fossils) came in the first week when, early in the morning, Nature told me I had to leave the tent to answer his/her call. The sun was low in the sky which was an apricot sort of colour. Dead still and silent. After doing what I had to do, I just stood there and listened. I heard all sorts of sounds from within me, sounds I had not heard or noticed before. Mawson's silence. That was the moment I got hooked on the Antarctic and knew I had to get back, somehow. Mawson talked of silence, but that is not enough. It has also to be in total isolation. I can get silence elsewhere, but not the isolation. Perhaps in a desert somewhere.



Left: Map of Ellsworth Land.

Top: Granite outcrop.

Right: Palaeontologist at work.

Left: the author. Right: The distant camp.

The rocks were magnificent. Sedimentary with fossils of Jurassic age (144-190 million years ago) – ammonites, bivalves, belemnites, worm tubes, leaves etc etc – leading to about 10 papers. Great geological structures, such as folds and faults, of the sort we see forming now where subduction occurs, such as in northeastern Japan or along the southern margin of Indonesia – all very active geologically. Outcrop was spectacular with long ridges providing ideal study conditions. There were all the normal problems with crevasses, high relief mountains, interpersonal disputes etc. Many of the fossils have not been found anywhere else in Antarctica since, but very similar forms are known from South America, New Zealand and Alaska (why Alaska?), suggesting these localities were connected at the time before the old supercontinent of Gondwana broke up. Many questions have still not been answered.



Pickup was a bit hairy as the C-130 pilots weren't sure where ground was (whiteout conditions) so they had to buzz our camp to get an idea of where the surface was.

Food was basic but very good and there was plenty of it: we chose our own before going into the field. Unfortunately, we were a very early party into McMurdo that year and thus the PX store had not been replenished by the time we got there.



So the range of refreshments was not as ideal as we would have wished, but we survived. Heineken beer was \$1 per slab!

The group still keeps in close communication and we have a get together every two years. Last year (2010) it was a Larry Lackey's place in Gardnerville, Nevada. The next one is to be in Tasmania in 2012, health (mainly on the part of wives/partners, so far) permitting.

A side-effect of the experience was meeting so many other well-known Antarctic experts in many fields, at McMurdo and developing other friendship that have stood me in good stead in many Antarctic forums such as SCAR and its various committees and symposia.

Perhaps Antarctic friendships are a bit more intense and long lasting than others; there are no secrets when you share tents for long periods.

A particularly rewarding aspect was the total international character of the experience. National boundaries did not exist and we were just scientists working to a common goal – getting to understand the structure and history of the Antarctic at a time when the idea of continental drift was just being accepted.

Patrick Quilty AM

Institute of Marine and Antarctic Studies (IMAS) and School of Earth Sciences, University of Tasmania

Left: In the field. Below: The pickup.



Ocean warming detrimental to inshore fish species

Australian scientists have reported the first known detrimental impact of southern hemisphere ocean warming on a fish species.

The findings of a study published today in *Nature Climate Change* indicate negative effects on the growth of a long-lived south-east Australian and New Zealand inshore species - the banded morwong.

Scientific monitoring since 1944 by CSIRO at Maria Island, off the east coast of Tasmania, showed that surface water temperatures in the Tasman Sea have risen by nearly 20°C over the past 60 years. This warming, one of the most rapid in the southern hemisphere oceans, is due to globally increasing sea-surface temperatures and local effects caused by southward extension of the East Australian Current.

Generally, cold-blooded animals respond to warming conditions by increasing growth rates as temperatures rise," said CSIRO marine ecologist Dr Ron Thresher, a co-author of the study with colleagues from the University of Tasmania's Institute for Marine and Antarctic Studies.

But theory and laboratory studies show that this has a limit. As temperatures get too high, we begin to see increased signs of stress, possibly eventually leading to death. We are looking at whether climate change is beginning to push fish past their physiological limits.

By examining growth across a range that species inhabit, we found evidence of both slowing growth and increased physiological stress as higher temperatures impose a higher metabolic cost on fish at the warm edge of the range," Dr Thresher said.

In this case, off northern New Zealand, ocean warming has pushed the banded morwong (right) - which inhabits temperate reefs in waters 10-50m deep - past the point where increasing temperatures are beneficial to growth."

Dr Thresher said climate change can affect species directly by influencing how their bodies function, their growth and behaviour and indirectly through environmental effects on ecosystems. To assess the impacts of this temperature increase on a marine species, the research team analysed long-term changes in the growth rates of the banded morwong (*Cheilodactylus spectabilis*).

The bony structures fish use for orientation and detection of movement - called otoliths - have annual growth rings which were measured for changes. Similar to growth rings in trees, they can be counted to indicate a fish's age and annual growth rate, estimated by measuring distances between each new ring.

According to a co-author of the paper, University of Tasmania (UTas) researcher Dr Jeremy Lyle, banded morwong were used in the study because they can live for almost 100 years and, as adults, they stay in essentially the same area even if the water temperature shifts. They have also been the subject of fisheries studies conducted by UTas researchers.

Growth rates of young adult banded morwong in SE Australia have increased significantly since 1910 at four sample sites," Dr Lyle said. "The team from CSIRO and the Institute for Marine and Antarctic Studies (UTas) compared these changes to temperature trends across the species' distribution.



They observed increased growth for populations in the middle of the species' range in Australian waters where temperatures have increased, but are still relatively cool, but growth slowed with rising temperatures at the warmer northern edge of the species' range in New Zealand waters.

Dr Lyle said the study showed that growth performance in banded morwong began to suffer above average annual water temperatures of about 17°C.

"Preliminary field and laboratory studies suggested that this decline in growth may be related to temperature induced physiological stress, resulting in increased oxygen consumption and reduced ability to sustain swimming activity."

The paper's other co-authors were: a post-doctoral fellow with CSIRO who is now with Aarhus University in Denmark, Dr Anna Neuheimer; and, Dr Jayson Semmens from UTas. The research was conducted through CSIRO's Climate Adaptation Flagship and the Institute for Marine and Antarctic Studies, with funding from an Australian Government Endeavour Awards Fellowship and the Winnifred Violet Scott Trust.

Craig Macauley

CSIRO

Obituary: Ambassador Jorge Berguño Barnes

The Antarctic community is mourning the passing of one of its most significant diplomats, Ambassador Jorge Berguño, who passed away last month.

Ambassador Berguño was born in San Bernardo, Chile, January 29, 1929 and died 8 May 2011, in Santiago de Chile.

Ambassador Berguño joined the Chilean Ministry of Foreign Affairs in 1953 and was extremely active as a diplomat and academic right up until his death. His diplomatic activities ranged widely, including as Chilean Ambassador to Australia from 1985 to 1987, and his academic interests were many and varied.

Jorge Berguño was a giant in Antarctic affairs over so many years. It is hard to imagine the Antarctic Treaty system without him. I had the privilege of working in international meetings with him on Antarctic matters for over a decade from the late 1990s. In that time I developed a deep fondness for him which is matched only by my respect for his wisdom.

Jorge Berguño obtained his first degree in Law and Social Sciences from the Catholic University of Chile in 1954. His subsequent degrees include a Masters of Public Administration from Princeton (1957) and a Doctor of International Affairs from the American University, Washington (1967). He published widely on international affairs, the Antarctic, and the Law of the Sea, as well as on history, exploration and science.

He had a wide and varied diplomatic career, including a posting to Paris in the early 1970s; later becoming the Chilean Ambassador to UNESCO in the early 1980s, followed by his appointment as Permanent Representative to the General Agreement on Tariffs and Trade (GATT).

He was a key advisor and negotiator for Chile on many international negotiations. He also served as the Ambassador to Canada, and Ambassador to the United Nations Office in Geneva and the Conference on Disarmament.

“Jorge Berguño was a giant in Antarctic affairs over so many years.”

Jorge Berguño was a champion of the ideals of the Antarctic Treaty: the spirit of cooperation; the protection of the environment; the continent devoted to peace and science. He was a significant player in the negotiations for the establishment of the Convention on the Conservation of Antarctic Marine Living Resources (1980); the Protocol on the Protection of the Antarctic Environment (1990); and the long, drawn out negotiations over liability for damage to the Antarctic environment (2005).

Softly spoken, he would often switch seamlessly from Spanish into English and French (sometimes in the same intervention), quietly emphasising a particularly point which more often than not included a precise analysis of international law and the Antarctic Treaty.

As a senior representative of one of the seven countries which lay claim to parts of the Antarctic continent (along with Australia, Argentina, France, the UK, New Zealand and Norway), Ambassador Berguño was the consummate diplomat: while always representing his country's national interests, he would seek a path that brought people together, and which would protect the integrity of the fundamental principles of the Antarctic Treaty.



Jorge Berguño was a good friend to Australia. He enjoyed coming here for Antarctic meetings and working with Australian scientists and diplomats in Antarctic affairs. Over the years he developed a keen interest early historical connections between Australia and Chile.

Not so long ago, on one of his many visits to Hobart, he was carrying with him a manuscript detailing the fate of the convicts who had escaped from Macquarie Harbour in Tasmania and sailed an epic voyage across the southern Pacific to Chile.

Ambassador Jorge Berguño is survived by his wife, Paula Hurtado, and his 5 children, two of whom have followed him into the diplomatic service.

His Antarctic colleagues will miss him. The tributes flowing from his Chilean colleagues have been most heartfelt. The world has lost one of its true Antarctic ambassadors.

Vale Don Jorge.

Tony Press






Tony Press is the CEO of the Antarctic Climate and Ecosystems Cooperative Research Centre based at the University of Tasmania; former Director of the Australian Antarctic Division (1998-2008); former Australian Commissioner to the Commission for the Conservation of Antarctic Marine Living Resources; and former Chair of the Antarctic Treaty Committee for Environmental Protection.

Extract from ACE CRC's Southern Ocean Acidification Report Card

Ocean acidification is the name given to the ongoing decrease in the potentiometric hydrogen ion concentration (pH) of the world's oceans, caused by their uptake of anthropogenic carbon dioxide from the atmosphere.

Ocean acidification is expected to impact on micro-organisms such as phytoplankton and zooplankton first. The impacts felt at this level feed up through the food web to higher trophic levels such as fish, birds and mammals. Here we summarise the current state of knowledge on the impact of ocean acidification on all trophic levels in the Southern Ocean in turn for both calcifying and non-calcifying organisms.

We currently know most about the likely effects of ocean acidification on calcifying organisms as the bulk of our efforts have been directed to these 'sentinel' organisms. We note, however, that there is increasing concern that ocean acidification could affect the noncalcifying species. Non-calcifying phytoplankton (diatoms and flagellates) and non-calcifying zooplankton (copepods and krill) dominate the Southern Ocean ecosystem and the mechanisms of impacts of acidification on these and other higher trophic levels, such as fish, remains a serious gap in our knowledge. **9**

The Issue	What we know	What we don't know	What we're doing	What's at stake	Online Links
<ul style="list-style-type: none"> Ocean acidification  <p>PHOTO 3</p>  <p>PHOTO 4</p>  <p>PHOTO 5</p>  <p>PHOTO 6</p>  <p>PHOTO 7</p>	<ul style="list-style-type: none"> The global ocean currently absorbs one-quarter of the anthropogenic CO₂ added to the atmosphere each year²³. Of the anthropogenic CO₂ emissions absorbed by the world's oceans, the Southern Ocean absorbs over 40%. The uptake of CO₂ into the ocean is driving a change in ocean chemistry: lowering ocean pH³ and the concentration of carbonate ions⁴ available to organisms that build calcium carbonate shells or skeletons (known as calcifiers). Some calcifiers are more at risk than others: shells can be made from aragonite or calcite (and aragonite is more easily dissolved than calcite)⁷. Continued acidification will push the ocean towards chemical compositions not seen for a long time⁸: <ul style="list-style-type: none"> pre-industrial pH was 8.2⁹ current average pH is 8.1¹⁰ we expect a drop to 7.8 by 2100 under 'business as usual' CO₂ emissions¹¹. Polar pH is changing at twice the rate of tropical waters¹². 	<ul style="list-style-type: none"> Whether the Southern Ocean will continue to absorb the same proportion of anthropogenic CO₂ in future. Where and when new additions of CO₂ will combine with naturally varying distributions of CO₂ in the ocean to regionally amplify acidification (e.g. the Ross Sea may experience delayed impacts)¹³. How Southern Ocean non-calcifiers will respond to changes in CO₂, pH and carbonate ion availability. How acidification will interact with other ocean variables likely to change in the future (e.g. temperature and oxygen). How calcifiers made from aragonite and calcite will respond to changes in pH and carbonate ion availability. What areas of the Southern Ocean are most at risk of continued ocean acidification. What the rate of acidification will be in Southern Ocean waters. 	<ul style="list-style-type: none"> Quantifying Southern Ocean processes that influence the uptake of CO₂. Measuring and monitoring Southern Ocean carbon chemistry and ocean-atmosphere interaction. Studying past, present and likely future impacts of ocean acidification on Southern Ocean organisms including: <ul style="list-style-type: none"> pteropods and deep-sea corals (aragonite calcifiers) and foraminifera and coccolithophores (calcite calcifiers). Developing comprehensive Southern Ocean ecosystem models to illuminate: <ul style="list-style-type: none"> populations at risk, communities at risk, and regions at risk. 	<ul style="list-style-type: none"> The continued climate mitigation service of the global ocean: <ul style="list-style-type: none"> Atmospheric CO₂ levels are tempered by the oceanic uptake of CO₂ i.e. without the ocean current atmospheric CO₂ concentration would be ~450 ppm¹⁴ instead of ~387 ppm¹⁵. This hidden ocean 'service' has been estimated to represent an annual subsidy to the global economy of US\$60 – US\$400 billion per year¹⁶. The role of Southern Ocean calcifiers in the global carbon cycle. Fossil fuel CO₂ emissions are currently tracking above all scenarios used by the IPCC¹⁷. If this trend in emissions continues, organisms would be subject to the lowest ocean pH experienced in the past ~20 million years by 2300 and the rate of fall in pH may possibly be the most rapid ever experienced¹⁸. The health and function of ocean ecosystems in vastly more acidic waters. Polar ecosystems are forecast to be among the first to be affected by acidification¹⁹. 	<ul style="list-style-type: none"> Global Carbon Project 2008: www.globalcarbonproject.org Royal Society Report 2005: royalsociety.org/Ocean-acidification-due-to-increasing-atmospheric-carbon-dioxide/ Ocean Acidification 2007: www.abc.net.au/catalyst/stories/s2029333.htm CO₂ emissions and trends 2008: www.globalcarbonproject.org/carbonbudget/index.htm High Latitude Acidification 2009: tos.org/oceanography/issues/issue_archive/issue_pdfs/22_4/22-4_fabry.pdf

Information supplied by Craig Macaulay, CSIRO



Polar News

Contract extension

Raytheon Technical Services Company LLC (RTSC), a subsidiary of Raytheon Company, has received a one-year extension to its contract with the National Science Foundation (NSF) in support of the U.S. Antarctic Program (USAP). The award is worth approximately \$157 million through March 31, 2012.

RTSC's Raytheon Polar Services Company (RPSC) has been under contract to the NSF to provide logistics, operations, and maintenance support to sustain year-round research programs at three U.S. stations and two science vessels in the Antarctic since 2000.

Merging helicopters

Canadian Helicopters Group Inc., the largest helicopter transportation services company operating in Canada, has announced that its wholly-owned subsidiary Canadian Helicopters Limited (CHL) has entered into a sale and purchase agreement to acquire the assets of Helicopters (N.Z.) Limited, including the shares of Helicopters (Australia) Pty Ltd and other active subsidiary companies, as well as the assets of Helicopter Nominees Limited (collectively HNZ) (the "Transaction"). The Transaction purchase price is NZ\$160 million (approximately C\$120 million), on a debt free and cash free basis, and is subject to customary adjustments.

Shipping plans

A search is underway for a ship to replace Australia's Antarctic icebreaker, Aurora Australis, when its lease to the AAD expires in 2016. Aurora Australis has coped with difficult conditions in the Southern Ocean as well as in the pack ice of Antarctica, for 110 voyages. The capabilities of the new ship will need to suit the future plans of the Antarctic program.

Aurora Australis is currently chartered by the federal government to serve as a temporary navy supply ship while HMAS Tobruk undergoes planned repairs. With two other navy ships not in service, transport capabilities are very restricted.

Aurora Australis is chartered from P&O Maritime Services from May 8 to June 30 at a cost of \$3.375 million, with an option for an extra month. As the icebreaker supports Antarctic bases with limited or no port facilities, it is unique among commercial vessels currently available, and ideal for humanitarian and disaster relief work.

The Chilean navy is also seeking a replacement for their Antarctic ship, Almirante Vial, in order to enhance their capabilities for Antarctic research.

ACY launch

The Antarctic Centennial Year was launched in the Bond Store of TMAG on Friday, May 6. Ros Harvey, from the Department of Innovation, Science and Technology, introduced Minister David O'Byrne, who outlined some of the Antarctic events occurring during the next 12 months, and commented on the opportunities these events provided to draw attention to Hobart's Antarctic status.

The Bond Store was also the venue for this year's Extreme Environment Photo Competition. The winner photos and other Tasmanian entries can be seen on Pages 5 and 25.

Sir Guy Green, Honorary Antarctic Ambassador and one of the competition judges, opened the exhibition and mentioned additional Antarctic anniversaries occurring during this centennial year. Besides the Centenary of the departure of Douglas Mawson's Australasian Antarctic Expedition and the Centenary of Roald Amundsen's announcement from Hobart that he had reached the South Pole, there is:

- the 75th anniversary of the proclamation of the Australian Antarctic Territory.
- the 50th anniversary of the coming into force of the Antarctic Treaty.
- the 30th anniversary of the entry into force of the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR).
- the 30th anniversary of the HQ of the Australian Antarctic Division moving to Hobart
- the 20th anniversary of the adoption of the Madrid Protocol.
- the 20th anniversary of the founding of the International Association of Antarctic Tour Operators
- the Centenary of the Royal Australian Navy, often responsible for sea transport to Antarctica.

Lead roles in the IPCC

The quality of the research conducted through the ACE CRC is reflected in the initiations given to Dr Steve Rintoul and Professors Nathan Bindoff and Ian Allison to be leading authors for the Fifth Assessment Report for the Intergovernmental Panel on Climate Change. Professor Kurt Lambeck and Dr John Church, previous researchers in the ACE CRC were also invited to play lead roles in the IPCC.

Acidification Report

The ACE CRC has produced a Southern Ocean Acidification Report Card which details in plain English the science behind ocean acidification and explains why ocean acidification is an important emerging area of scientific research. It also outlines what we know and what we don't know about ocean acidification in the Southern Ocean. The report card was launched in April at Greenhouse 2011 in Cairns and ACE has received very positive feedback about it.

See previous page for extract.

Polar Publications

BOOK

Douglas Mawson's Antarctic Bases

David Jensen
Published by Mawson's Huts Foundation
Price: \$39.95 + \$3.00 postage

This book has been written as an information source for students and visitors to the huts at Commonwealth Bay. It contains photos of the expeditioners at Macquarie Island, Commonwealth Bay and the Shackleton Ice Shelf, where the original Australasian Antarctic Expedition (AAE) set up bases in 1911. Photos of some of the officers aboard the SV Aurora are also included. There are aerial photos of Cape Denison, a guide to flora and fauna, as well as pictures of the current work being undertaken by Mawson's Huts Foundation teams. MHF has published this book to assist in raising funds to continue the conservation work. Contact David Jensen for further details: david.jensen@mawson-huts.org.au

BOOK

Ice Journey: A story of adventure, escape and salvation

David Morgan
Published by: Big Sky Publishing
Price: \$29.99

The author, a Vietnam War veteran suffering from Post Traumatic Stress Disorder, applied for jobs in Antarctica and describes some of his training and times at several bases, before falling at Casey Station and being medivaced back to Hobart.

BOOK

Cold Land, Warm Hearts: More memories of an Arctic Medical Outpost

Keith Billington
Published by Harbour Publishing
Price \$59.95

This is the author's second book of stories of medical emergencies and Native traditions of the Gwich'in people in northern Canada, with endings to many of the stories from the first book

MAGAZINE

Australian Geographic No 102

Contains a poster of Australia's World Heritage sites, including Heard and McDonald Islands in the Sub-Antarctic. Also has an AG Society Expedition Report on Mawson's Hut, Antarctica by Mike Rossi. For more information see www.australiangeographic.com.au/journal/102.htm

BOOK

Deep Freeze: The United States, the International Geophysical Year and the Origins of Antarctica's Age of Science

Dian Olson Belanger
Published by University Press of Colorado
Price: \$25.95

A detailed account of the US Antarctic program up to and during the IGY of mid-1957 to the end of 1958.

BOOK

Antarctica to Footscray: Arch Hoadley - a man of Inspiration and Courage

Jack A. Hoadley
Published by Sid Harta
Price: \$25.00

A biography of the author's father, whose key influences included Sir Douglas Mawson.

STAMPS

Australia Post will be issuing stamps with images of Australian Antarctic Territory icebergs in June 2011

ON THE WEB

Polar Motion: A Look Inside Driving in Antarctica – Feature:

http://www.caranddriver.com/features/11q2/polar_motion_a_look_inside_driving_in_antarctica-feature

Nunavut Arctic College

www.arcticcollege.com

Catlin Arctic Survey

www.catlinarcticsurvey.com

E-X-T-R-E-M-E Northwest Passage Adventure

www.pitterak.com



Ice Birds



Aquilina Lestenkof

Born: 1960

Occupation: Co-Director, Ecosystem Conservation Office, Aleut Community, St. Paul Island, Alaska, USA

Notable Expeditions: Pribilof Islands and Shetland Islands

Award: Wings 2006 Earth Award
– www.wingsworldquest.org

Website: www.polartrec.com

Nothern Polar Researchers



Lene Holm

Born: 1963

Occupation: Director, Environmental and Sustainable Development Issues and Research, Inuit Circumpolar Council, Greenland

Notable Expedition: Interviewing fishermen and hunters throughout Greenland.

Award: Wings 2008 Field Research Award – www.wingsworldquest.org

Website: www.sciencepoles.org



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14-15	June	2011	5th Malaysian International Seminar on Antarctica (MISA5) Kuala Lumpur, Malaysia. Held in conjunction with the 22nd Pacific Science Conference. Theme: Rapid Warming in the Polar Regions and its implications in the Pacific.
16	June	2011	TPN committee meeting 4-5pm ATSR offices, Hobart, Tasmania.
17	June	2011	TPN meeting. 9-11am CSIRO. Hobart, Tasmania.
17	June	2011	Melbourne Midwinter Dinner and Tasmanian ANARE Club Midwinter Dinner. For details of other midwinter dinners, see www.anareclub.org.au .
18-26	June	2011	Longest Night Film Festival. State Cinema, Hobart, Tasmania.
20	June	2011-	ATCM XXXIV-CEP XV. Buenos Aires, Argentina.
1	July	2011	
22-24	June	2011	Meteorological Observation, Modeling and Forecasting Workshop. Hobart, Tasmania.
28	June	2011-	General Assembly of the International Union of Geodesy and Geophysics. Theme: Earth on Edge: Science for a Sustainable Planet. Session J-P01 The Southern Ocean in a changing world. Melbourne, Victoria.
7	July	2011	
29	June	2011-	SCAR Astronomy and Astrophysics from Antarctica. Sydney, NSW.
1	July	2011	
5	July	2011	Royal Society of Tasmania lecture - Tasmania; the southern hemisphere's hub for marine and Antarctic research. Presented by Prof. Mike Coffin. Royal Society room, TMAG Davey St entrance. 8-10pm.
10-15	July	2011	ISAES XI-11th International Symposium on Antarctic Earth Sciences. Edinburgh, Scotland.
26-29	July	2011	SCAR History Workshop 'Antarctic History: probing the unknown' Stellenbosch, S. Africa.
31	July	2011	Philip Law Memorial Lecture. Hobart, Tasmania.
1-2	August	2011	3rd International Forum on the Sub-Antarctic. www.sub-antarctic.org . Hobart, Tasmania.
13-21	August	2011	National Science Week.
29	August	2011-	6th meeting of ACAP's Advisory Committee. Guayaquil, Ecuador.
2	September	2011	
5	September	2011	TPN meeting and AGM (to be confirmed). Hobart, Tasmania.
7-9	September	2011	8th Symposium on Polar Studies. Palma de Mallorca, Spain.
23-24	September	2011	Symposium on Research Urgencies in the Polar Regions. Siena, Italy.
25-30	September	2011	Gondwana 14 - 'East Meets West'. Armação dos Búzios, Brazil.
26-30	September	2011	World Conference on Marine Biodiversity. Aberdeen, Scotland.
24	October	2011-	30th Annual CCAMLR meetings. Hobart, Tasmania.
4	October	2011	
1	December	2011	Mawson's Huts Foundation Dinner. Hobart, Tasmania.
2	December	2011	Opening of National Archives of Australia - 'Australians in Antarctica' exhibiton. TMAG, Hobart, Tasmania.
2	December	2011	100th Anniversary of the departure of Mawson's expedition - commemorative flotilla on the Derwent River, Hobart, Tasmania.
15	December	2011	TPN meeting (to be confirmed). Hobart, Tasmania.

centenary.antarctica.gov.au antarcticcentennial.tas.gov.au
www.environment.gov.au/about/media/events www.scar.org/events

Tasmanian entries in the Extreme Environment Photographic Competition 2011

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Left: "Blown Away" by C.J. Wilson.

Below: "Adelie Wakes" by H. Baird.

Next page: "Sea Ice and The Aurora"
by F. Olivier.



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31	August	2011	Aurora Australis	VE1	Departs Hobart for Macquarie Island
4-10	September	2011	Aurora Australis	VE1	Macquarie Island
14	September	2011	Aurora Australis	VE1	Arrives Hobart
17-21	October	2011	Aurora Australis	Trials	Departs Hobart for Marine Science and returns
23	October	2011	Aurora Australis	V1	Departs Hobart for Davis Station
26	October	2011	L'Astrolabe	VRO	Departs Hobart for Macquarie Island
29	October	2011	L'Astrolabe	VRO	Macquarie Island
4-9	October	2011	L'Astrolabe	VRO	Dumont D'Urville
6-16	November	2011	Aurora Australis	V1	Davis Station
17	November	2011	L'Astrolabe	VRO	Arrives Hobart
30 3	November December	2011- 2011	Aurora Australis	V2	Arrives Hobart, departs for Casey Station
12-20	December	2011	Aurora Australis	V2	Casey Station
29	December	2011	Aurora Australis	V2	Arrives Hobart

From ship to sky: Aurora Australis possibilities

When I was volunteering at the Extreme Environment Photographic Competition, a visitor asked me if there was any way she could have advanced notice of an Aurora Australis appearing in the sky, as she often missed the display. An aurora is an atmospheric phenomenon consisting of bands, curtains or streamers of light, usually green, red or yellow, that move across the sky in polar regions. It is caused by collisions between air molecules and charged light particles, from the sun, that are trapped in the Earth's magnetic field.

I contacted Steve Pendlebury, head of the Bureau of Meteorology (BOM) in Hobart, who emailed my query to Dr Phil Wilkinson from the BOM's Ionospheric Prediction Service (IPS) Radio and Space Services in Sydney. Dr Wilkinson has kindly provided Ice Breaker with a website address which can be accessed to check the likelihood of seeing an Aurora. The alert is triggered by the state of the solar environment near the Earth, although the current solar cycle has not had many alerts.

Go to www.ips.gov.au/Products_and_Services/4/1, select "Mailing List" then "Possibility of Auroral Event". This is also an SMS Service. [Ed.]



Part of "Sea Ice and The Aurora" by F. Olivier, her entry in the Extreme Environment Photographic Competition 2011.

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